

MATE: Modern Software Technology for Flight Test Automation and Orchestration, Phase I

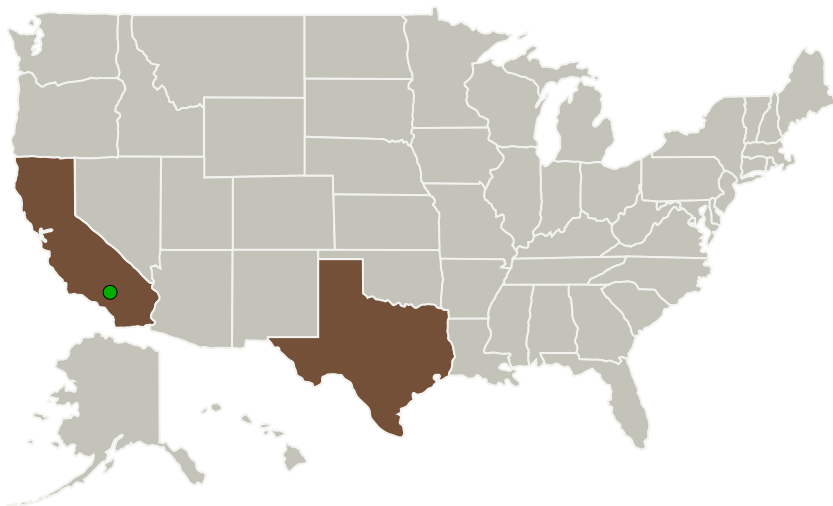
Completed Technology Project (2016 - 2016)



Project Introduction

The development of advanced technologies for flight testing, measurement, and data acquisition are critical to effectively meeting the future goals and challenges faced by NASA and the aerospace industry. Space systems have become increasingly complex where the development of each system may be geographically distributed across organizations and subsystems. When performing an integrated flight test, the main problems that must be addressed are test orchestration and measurement/data acquisition. The main issue with both areas typically arises from the fact that each system component may employ various disparate interfaces which may be in addition to the direct interfaces used during flight. Effective flight tests will also likely involve the integration of multiple simulations and other test equipment to provide inputs and feedback for real-world scenarios. The proposed innovation is a scalable architectural software framework known as the mREST Automated Test Environment (MATE) which addresses the technical issues commonly associated with flight testing, measurement, and data acquisition by providing comprehensive flight test orchestration and data measurement/acquisition capabilities in both centralized and distributed environments. MATE has the potential to significantly optimize current flight test methodologies without levying new requirements on each test element. The proposed software framework is based on the mREST Architecture and Interface Specification which is a specific implementation of a RESTful web-services architecture that resulted from research and prototyping efforts performed by METECS for the Johnson Space Center (JSC).

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
METECS	Lead Organization	Industry	Houston, Texas
● Armstrong Flight Research Center(AFRC)	Supporting Organization	NASA Center	Edwards, California

Primary U.S. Work Locations	
California	Texas

Project Transitions

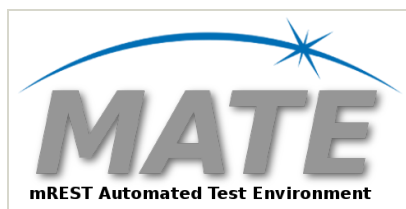
▶ **June 2016:** Project Start

✓ **December 2016:** Closed out

Closeout Documentation:

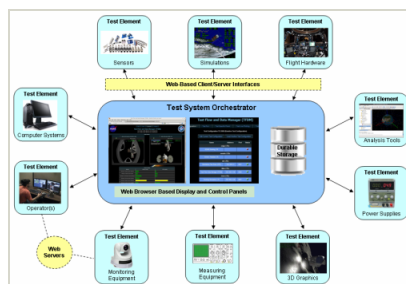
- Final Summary Chart(<https://techport.nasa.gov/file/139614>)

Images



Briefing Chart Image

MATE: Modern Software Technology for Flight Test Automation and Orchestration, Phase I
(<https://techport.nasa.gov/image/136113>)



Final Summary Chart Image

MATE: Modern Software Technology for Flight Test Automation and Orchestration, Phase I Project Image
(<https://techport.nasa.gov/image/128347>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

METECS

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

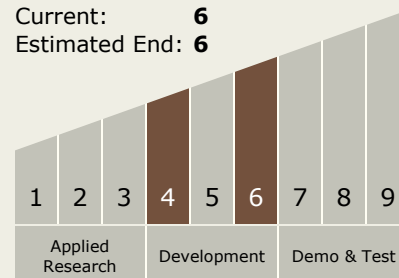
Carlos Torrez

Principal Investigator:

John Maclean

Technology Maturity (TRL)

Start: 4
Current: 6
Estimated End: 6



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Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
 - └ TX13.1 Infrastructure Optimization
 - └ TX13.1.6 Test, Operations, and Systems Safety

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System